



Breastfeeding and Maternal Nutrition Frequently Asked Questions (FAQ)

FAQ SHEET 4

From the LINKAGES Project

Updated
July 2003

FAQ Sheet is a series of publications of Frequently Asked Questions on topics addressed by the LINKAGES Project. This issue focuses on the impact of maternal nutrition on breastmilk quantity and quality, the nutritional requirements of lactating women, the impact of breastfeeding on maternal health, and implications of this information for programs.

Effect of Breastfeeding on Maternal Nutrition

Q *Does breastfeeding affect the mother's nutritional status?*

It can, depending on the mother's diet. The energy, protein, and other nutrients in breastmilk come from the mother's diet or from her own body stores. When women do not get enough energy and nutrients in their diets, repeated, closely-spaced cycles of pregnancy and lactation can reduce their energy and nutrient reserves, a process known as *maternal depletion*. However, there are also adaptations that help protect the mother from these effects. The most important is appetite. During pregnancy and particularly during lactation, a woman's appe-

tite generally increases. The resulting increase in food intake helps meet the additional demands of pregnancy and lactation. Extra food, therefore, must be made available to the mother.

Community and household members should be informed of the importance of making additional food available to women before they become pregnant, during pregnancy and lactation, and during the *recuperative interval* when the mother is neither pregnant nor lactating. Making more food available to mothers is even more important in societies with cultural restrictions on women's diets. Efforts to increase the amount of food available to adolescent, pregnant, and lactating women can be the most effective way of improving their health and that of their infants.

Summary of Main Points

1. Unless extremely malnourished, virtually all mothers can produce adequate amounts of breastmilk. When the breastfeeding mother is undernourished, it is safer, easier, and less expensive to give her more food than to expose the infant to the risks associated with breastmilk substitutes.
2. Maternal deficiencies of some micronutrients can affect the quality of breastmilk. These deficiencies should be avoided by improving the diet or providing supplements to the mother.
3. Lactation places high demands on maternal stores of energy and protein. These stores need to be established, conserved, and replenished.
4. Delay of the first birth and adequate birth spacing help ensure that maternal stores are sufficient for healthy pregnancy and lactation.
5. Breastfeeding provides health benefits to the mother as well as to the infant.

Q *How much extra food does a breastfeeding mother need?*

To support lactation and maintain maternal reserves, most mothers in developing countries will need to eat about 650 additional kilocalories (the equivalent of one extra meal) every day. Well-nourished mothers who gain enough weight during pregnancy need less because they can use body fat and other stores accumulated during pregnancy. Lactation also increases the mother's need for water, so it is important that she drink enough to satisfy her thirst.

Q *Should certain foods be eaten or avoided by breastfeeding mothers?*

No. There are no specific foods that must be eaten or avoided by the breastfeeding mother, despite what many people think. Food rules (eat this, avoid that) can cause harm by reducing the mother's ability to choose a balanced diet or by discouraging her from breastfeeding. Consumption of a variety of foods is the best dietary advice.

Effect of Maternal Nutrition on Breastfeeding

Q *Can malnourished mothers produce enough milk to breastfeed successfully?*

Yes. In all but the most extreme cases, malnourished mothers can follow the same recommendations for breastfeeding as mothers who are not malnourished. These recommendations include exclusive breastfeeding¹ for six months followed by on-demand breastfeeding and the introduction of complementary foods.

There is a common misconception that malnutrition greatly reduces the amount of milk a mother produces. Although malnutrition may affect the quality of milk, studies show that the amount of breastmilk produced depends mainly on how often and how effectively the baby sucks on the breast. If a mother temporarily produces less milk than the infant needs, the infant responds by suckling more vigorously, more frequently, or longer at each feeding. This stimulates greater milk production. When the breastfeeding mother is under-

nourished, it is safer, easier, and less expensive to give *her* more food than to expose an infant under six months of age to the risks² associated with feeding breastmilk substitutes or other foods.

Q *Can breastmilk production be increased by giving the mother additional food?*

Some evidence suggests it can. Two randomized intervention trials, in Burma and Guatemala, have so far been conducted to answer this question. In both studies, food supplementation of malnourished lactating mothers resulted in a small increase in infant milk intake. In another study in Indonesia, maternal supplementation *during pregnancy* improved infant growth rates, possibly by increasing breastmilk production. Therefore, although maternal malnutrition is not considered an important constraint to breastfeeding for most mothers, giving additional food to malnourished mothers during pregnancy and/or lactation may help increase milk production and will certainly improve their own nutritional status and provide additional energy to care for themselves and their families.

¹ Exclusive breastfeeding means giving no other foods or liquids, not even water.

² These substitutes are less nutritious than breastmilk, lack antibodies to fight infections, and often carry contaminants.

Q Should breastfeeding mothers take extra vitamins and minerals?

It depends on the mother's diet. Breastmilk is rich in the vitamins and minerals needed to protect an infant's health and promote growth and development. If the mother's diet is poor, the levels of micronutrients in breastmilk may be reduced or the mother's own health may be affected. It is therefore important that the mother's micronutrient intake is adequate. A diverse diet containing animal products and fortified foods will help ensure that the mother consumes enough micronutrients for both herself and her breastfeeding infant. If a diverse diet is not available, a micronutrient supplement may help.

For example, in areas where vitamin A deficiency is common, it is currently recommended that all mothers take a single high-dose supplement of 200,000 international units³ (IU) of vitamin A as soon as possible after delivery. Studies have shown that such a supplement improves the vitamin A levels in the mother, in breastmilk, and in the infant. High doses of vitamin A are not recommended for women during pregnancy or later than eight

weeks after delivery (or later than six weeks if the mother is not breastfeeding) because too much vitamin A may cause damage to the developing fetus. Although high doses during pregnancy can be dangerous, daily (<8,000 IU) or weekly (<25,000 IU) *low-dose* vitamin A supplements during pregnancy can reduce maternal night blindness and death.

The levels of thiamin, riboflavin, vitamin B-6, vitamin B-12, iodine, and selenium in breastmilk are also affected by how much is in the food the mother eats. In areas where deficiencies of these micronutrients are common, increasing the mother's intakes through improved diets or supplements will primarily improve breastmilk quality and infant nutrition.

Other micronutrients (such as folate, calcium, iron, copper, and zinc) remain at relatively high levels in breastmilk even when the mother's reserves are low. This means that the breastfeeding mother's own reserves can be used up and that it is primarily the mother herself who will benefit if she eats more food high in these micronutrients. Additional calcium and iron, in particular, are often needed to protect maternal reserves.

Effect of Breastfeeding on Maternal Health

Q Does breastfeeding benefit the mother's health?

Yes. Breastfeeding has many positive effects on the mother's health. One of the most important is *lactational infertility*. This is the period of time after giving birth that the mother does not become pregnant due to the hormonal effects of breastfeeding. Studies show that this effect is greater when the infant suckles more frequently and is exclusively breastfed. Increasing the interval between births has benefits for the mother and her children. Fewer pregnancies reduce the mother's risk of maternal depletion and maternal death. A related effect is *lactational amenorrhea*, the period of time after giving birth that the mother does not menstruate due to the same hormonal effects of breastfeeding. This is the basis for the lactational amenorrhea method (LAM)⁴ of contraception. Lactational amenorrhea also reduces the amount of menstrual blood loss, which helps to prevent anemia by conserving the mother's iron stores.

³ This recommendation is currently under review and may be increased, pending the results of on-going research.

⁴ LAM is defined by three criteria: 1) the woman's menstrual periods have not resumed, AND 2) the baby is fully or nearly fully breastfed, AND 3) the baby is less than six months old.

There are many other benefits of breastfeeding for the mother. Breastfeeding immediately after delivery stimulates contraction of the uterus. This may help reduce loss of blood and risk of hemorrhage, a major cause of maternal mortality. There is good evidence that breastfeeding reduces the risk of ovarian and breast cancer and helps prevent osteoporosis.

Program Implications and Guidelines

What can programs do to support breastfeeding and maternal nutrition?

Information presented in this FAQ has implications for the distribution of food in the household, the division of labor, and the delivery of services to women. Women's nutritional status is threatened by repeated, closely spaced pregnancies, inadequate energy intake, micronutrient defi-

ciencies, infections, parasites, and heavy physical labor. Health services and agricultural extension services, secondary schools, women's groups, and other outreach networks provide opportunities to promote better infant feeding and maternal dietary practices and to offer preventive care and counseling. Health care providers can help improve maternal nutrition by counseling women about breastfeeding, increased food intake, dietary diversification, workload reduction, and family planning (including delaying the first birth, birth spacing, and options for limiting family size). They can also assess a woman's need for antimalarials, hookworm medication, and micronutrient supplementation and provide appropriate treatment.

For undernourished populations and populations displaced by war and natural disasters, the use of breastmilk substitutes can be particularly dangerous. The best solution is to feed the mother, not the infant, and to give her whatever

support she needs for breastfeeding. Providing additional foods and fluids to the mother helps both mother and child.

The time for intervention should not be limited to periods of pregnancy and lactation. Adequate nutrition is a cumulative process. In fact, birth outcome is strongly influenced by the mother's nutritional status even before she becomes pregnant. The recuperative interval between lactation and the next pregnancy also offers an opportunity to replenish the mother's energy and micronutrient reserves.

The recommendations in the box on page 5 are suggested to improve the nutrition of adolescent girls and women of reproductive age. These recommendations, coupled with optimal breastfeeding and complementary feeding practices, will contribute to good health and nutrition throughout the life cycle.

Recommended Practices to Improve the Nutrition of Adolescent Girls (10-19 Years) and Women of Reproductive Age

Recommended at all times

- ◆ Increase food intake, if underweight, to protect adolescent girls' and women's health and establish reserves for pregnancy and lactation.
- ◆ Diversify the diet to improve the quality and micronutrient intake.
 - ◆ Increase daily consumption of fruits and vegetables.
 - ◆ Consume animal products, if feasible.
 - ◆ Use fortified foods, such as vitamin A-enriched sugar and other products and iron-enriched and vitamin-enriched flour or other staples, when available.
- ◆ Use iodized salt.
- ◆ If micronutrient requirements cannot be met through available food sources, supplements containing folic acid, iron, vitamin A, zinc, calcium, and other nutrients may be needed to build stores and improve women's nutritional status.

Recommended during periods of special needs

At certain times, girls and women have heightened nutritional requirements. During these times, they should follow the above recommendations *plus* those listed below.

During adolescence and before pregnancy

- ◆ Increase food intake to accommodate the adolescent "growth spurt" and to establish energy reserves for pregnancy and lactation.
- ◆ Delay the first pregnancy to help ensure full growth and nutrient stores.

During pregnancy

- ◆ Increase food intake to permit adequate weight gain to support fetal growth and future lactation.
- ◆ Take iron/folic acid tablets daily.

During lactation

- ◆ Eat the equivalent of an additional, nutritionally balanced meal per day.
- ◆ In areas where vitamin A deficiency is common, take a high-dose vitamin A capsule (200,000 IU) as soon after delivery as possible, but no later than 8 weeks postpartum to build stores, improve the vitamin A content of breastmilk, and reduce infant and maternal morbidity.
- ◆ Use the lactational amenorrhea method (LAM) and other appropriate family planning methods to protect lactation, space births, and extend the recuperative period.

During the interval between stopping lactation and the next pregnancy

- ◆ Plan and ensure an adequate period (at least six months) between stopping lactation and the next pregnancy to allow for the necessary build-up of energy and micronutrient reserves.

Further Reading

- Allen LH. Maternal micronutrient malnutrition: Effects on breast milk and infant nutrition, and priorities for intervention. *SCN News* 11:21-27, 1994.
- Brown KH, Dewey KG. Relationships between maternal nutritional status and milk energy output of women in developing countries. In: *Mechanisms Regulating Lactation and Infant Nutrient Utilization* (Picciano MF and Lonnerdal B, eds.), pp. 77-95. Wiley-Liss: New York, 1992.
- Dewey KG. Energy and protein requirements during lactation. *Annual Review of Nutrition* 17:19-36, 1997.
- González-Cossío T, Habicht J-P, Rasmussen KM, Delgado HL. Impact of food supplementation during lactation on infant breast-milk intake and on the proportion of infants exclusively breast-fed. *Journal of Nutrition* 128:1692-1702, 1998.
- Krasovec K, Labbok MH, Queenan JT. (eds). Breastfeeding and borderline malnutrition in women. *Journal of Tropical Pediatrics* 37 (suppl 1), 1991.
- Institute of Medicine. *Nutrition during Lactation*. National Academy Press: Washington, DC, 1991.
- Lawrence RA. *Breastfeeding: A Guide for the Medical Profession*, 4th edition. Mosby: St. Louis, 1994.
- LINKAGES. *Recommended Feeding and Dietary Practices to Improve Infant and Maternal Nutrition*, Academy for Educational Development: Washington, DC, 1999.
- Merchant K, Martorell R, Haas J. Maternal and fetal responses to the stresses of lactation concurrent with pregnancy and of short recuperative intervals. *American Journal of Clinical Nutrition* 52:280-288, 1990.
- Morbacher N, Stock J. *The Breastfeeding Answer Book* (revised edition). Schaumburg, IL: La Leche League International, 1997.
- Naing KM, Oo TT. Effect of dietary supplementation on lactation performance of undernourished Burmese mothers. *Food and Nutrition Bulletin* 9:59-61, 1987.



FAQ Sheet is a publication of LINKAGES: Breastfeeding, LAM and Related Complementary Feeding and Maternal Nutrition Program. LINKAGES is supported by the Bureau for Global Health, the United States Agency for International Development (USAID) under the terms of Grant No. HRN-A-00-97 00007-00 and is managed by the Academy for Educational Development. The opinions expressed herein are those of the authors and do not necessarily reflect the views of USAID.

